

"PATENT"

AMENDMENT TRANSMITTAL FORM

In re application of: Walter Weissman et als.

U. S. Serial No.: 09/818,210

Filed: March 27, 2001

For: TUNING FUEL COMPOSITION FOR DRIVING
CYCLE CONDITIONS IN SPARK IGNITION
ENGINES

) Before the Examiner

) Tam M. Nguyen

) Confirmation Number: 2484

) Group Art Unit: 1764

) Family Number: P2001J024

COMMISSIONER FOR PATENTS

Washington, D.C. 20231

Sir:

☒ The undersigned hereby certifies having information and a reasonable basis for belief that this correspondence will be deposited as first-class mail with the United States Postal Service in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231, on 2/24/03.

Transmittal herewith is an Amendment in the above-identified application.

Petition for extension of time pursuant to 37 CFR 1.136 and 1.137 is hereby made, if and to the extent, required. The fee for this extension of time is calculated to be \$_____ to extend the time for filing this response until _____.

The fee for any changes in number of claims has been calculated as shown below.

CLAIMS AS AMENDED						
(1)	(2) Claims Remaining After Amendment	(3)	(4) Highest Number Previously Paid For	(5) Present Extra	(6) Rate	(7)
Total Claims	*	Minus	**		x 18.00	
Indep. Claims	*	Minus	***		x 84.00	
MULTIPLE DEPENDENT CLAIM FEE					\$280.00	
FEE FOR CLAIM CHANGES						

* If the entry in Column 2 is less than the entry in Column 4, write "0" in Column 5.

** If the "Higher Number Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space.

The total fee for this Amendment, including claim changes and any extension of time is calculated to be \$ 0.

☒ Charge \$ 0 to Deposit Account No. 05-1330.

☒ The Commissioner is hereby authorized to charge any additional fees under 37 CFR 1.16 and 1.17 which may be required by this paper, or credit any overpayment, to Deposit Account No. 05-1330. A duplicate copy of this Form is enclosed.

24 February 2003
Date of Signature

Paul E. Purwin
Attorney or Agent of Record

Post Office Address: [to which correspondence is to be sent]

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☐ Pursuant to 37 CFR 1.34(a)



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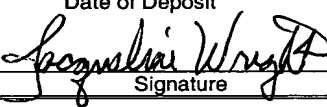
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"PATENT"

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of) Before the Examiner
Walter Weissman et als.) Tam M. Nguyen
)
U. S. Serial No. 09/818,210)
) Confirmation Number: 2484
Filed: March 27, 2001)
) Group Art Unit: 1764
TUNING FUEL COMPOSITION FOR)
DRIVING CYCLE CONDITIONS IN) Family Number: P2001J024
SPARK IGNITION ENGINES)

Commissioner for Patents
Washington, DC 20231

Sir:

I hereby certify that I have a reasonable basis for believing that this correspondence will be deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231, on <u>2/24/03</u> .		
	Date of Deposit	
Jacqueline Wright		2/24/03
Name of attorney or agent	Signature	Date of Signature

Amendment

The Office Letter of November 27, 2002 (Paper No. 12) has been carefully reviewed by the applicants. The following amendments and comments are submitted in response thereto.

First, with respect to the restriction requirement, applicants affirm their provisional election to prosecute the invention of Group I, claims 1 to 12.



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Second, pursuant to the provisions of 37 CFR 1.143 applicants respectfully request the Examiner to reconsider and withdraw his restriction requirement as it applies to the Group III claims. The Group III claims are directed to the method of using the product of the Group I claims. The product of the Group I claims are for use as an internal combustion engine having a CR of 11 or more and the method claims of Group III are directed toward operating such a high CR engine with the fuels of Group I. Consequently in applicants' view the inventions are not sufficiently distinct as to require restriction.

Third, regarding the claims:

(a) The Examiner's objections to the claims with respect to the expression "RON" and missing unit of volume are noted and corrected in the amended claims, for which both clean and marked-up copies are attached;

(b) The objection to Table 3 of the specification is noted and a clean copy of that Table is attached;

(c) The attached amended claims also address the Examiner's rejections under 35 USC 112 with respect to the expression "MBT" and "the high octane fuel" of claim 12; and

(d) The amended claims also emphasize that the fuels are operable in a spark ignition engine having a CR of 11 or more. Support for this can be found throughout the specification and original claims.

Fourth, in addition to the foregoing applicants' are enclosing a new paragraph to be inserted at page 3, after paragraph [0014] This new paragraph is supported by the statement in paragraph [0035] and claim 1. Applicants believe that including a description of the first fuel at that point places the application in better form.

Finally, applicants respectfully request the Examiner to reconsider and withdraw his rejection of claims 1 to 12 under 35 USC 103 based on Ma and IiYama.

Claims 1 to 12 are directed to a plurality of fuels operable in a spark ignition, internal combustion engine having a compression ratio of 11 or more. The fuels of claims 1 to 7 are defined not only by their RON but also by their burn rate and laminar flame speed under specified load conditions. The fuels of claim 8 to 12 are also defined by their RON and additionally by aromatic content, and in claims 11 and 12 by sulfur content as well.

Ma and IiYama disclose systems for separating a fuel into a high octane fuel and a low octane fuel; however, there is no suggestion or disclosure in the references for providing fuels having the specific characteristics of applicants' fuels.

Applicants require a first fuel having a RON greater than 100, and at high load conditions an average burn rate greater than 105% of isooctane and a laminar flame speed greater than 105% of isooctane. Applicants' second fuel is also characterized by RON, flames speed and burn/rate.

The Examiner seems to suggest that a low octane fuel and a high octane fuel would have the burn rate and flame speeds of applicants' claimed fuels. Such however is not the case. Attached is a plot of flame speed vs RON for a number of hydrocarbons. The flame speed data is from Davis and Law, Combustion Science and Technology, 1998, Vol. 140 pp 427-449. What this chart demonstrates is that there is no clear correlation between flame speed and RON. Applicants' first fuel has a RON greater than isooctane, i.e., greater than 100, and a flame speed greater than 105% of isooctane. Applicants' second fuel has a lower RON and a greater flame speed than isooctane.

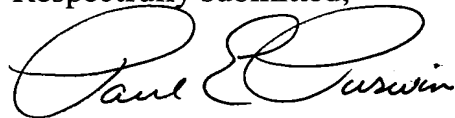
The test fuels, DF-2 and DF-1, of applicants' invention were not commercially available fuels but were model blends prepared by applicants with the requisite claimed properties to illustrate the advantage of fuels having applicant's claimed properties over isooctane and the commercial Japanese regular gasoline, LFG-2B. Significantly this advantage was not known to others before applicants' discovery thereof.

Similar comments can be made with respect to applicants' third fuel.

Regarding the fuels of claim 8 to 12 it should be noted that isooctane with a RON of 100 is totally devoid of aromatics, whereas applicants' fuels of claims 8 to 12 do include specified amounts of aromatics and these fuels have the properties of the DF-2 and DF-1 test fuels.

From the foregoing, it should be apparent that the cited references fail to remotely disclose or suggest applicants' claimed invention. Consequently, applicants' request prompt allowance.

Respectfully submitted,



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☐ Pursuant to 37 CFR 1.34(a)

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